

MATHEMATICS

Mathematics in Years 7 and 8 is taught in compulsory year long courses, five periods each week. As a result of studying Mathematics each student is given the opportunity to develop skills, concepts, applications and processes that will enable them to take an active and meaningful role in society.

OUTCOMES

The Years 7 and 8 Mathematics courses are based on the Level 5 Curriculum and Standards Framework (CSF) outcomes, which are broadly described below.

- 1. Space** – Students are able to draw and interpret geometric shapes; describe and make models of 3-D objects from 2-D representations; locate places and objects in space; and transform shapes (translation, reflection, rotation and dilation).
- 2. Number** – Students are able to count and compare integers, decimals, fractions, percentages, ratios and negative numbers; express numbers in different forms; recall basic number information; and use estimation strategies.
- 3. Measurement** – Students are able to use metric units, read scales and choose instruments to measure to the required accuracy; estimate, measure and calculate time; develop and use rules to calculate perimeters, areas and volumes of shapes; and calculate rates.
- 4. Chance and data** – Students are able to work out probabilities and use random devices; plan research and collect information; organise tables and plot data in different ways; and use measures of spread and centre.
- 5. Algebra** – Students are able to generate patterns and work with rules; solve linear equations and inequations; use ordered pairs; and plot graphs of linear functions.
- 6. Reasoning and strategies** – Students are able to use calculators for a variety of purposes, use computer drawing programmes, databases and spreadsheets; communicate mathematics ideas and information in different ways; test ideas; and describe Maths in their world.

AREAS OF STUDY

Year 7: Number Systems, Operations with Integers, Geometry, Algebra, Fractions, Decimals, Percentages, Graphics/Statistics, Measurement, Probability

Year 8: Operations with Natural Numbers, Directed Numbers, Algebra, Functions & Decimals, Geometry, Linear Equations & Inequations, Percentages

WORK REQUIREMENT TASKS

1. Skills practice and standard applications – textbook exercises and assignments
2. Problem-solving and modelling
3. Projects

ASSESSMENT TASKS

1. Skills practice and standard applications – topic tests and assignments
2. Problem-solving (one fully written report per semester)
3. Project (one fully written report per semester)

TEXTS AND EQUIPMENT

All students need to have a copy of the textbook **Essential Mathematics 7/8, The CSF11 Course (Cambridge)** and drawing and measuring equipment (booklist) and to purchase a scientific calculator (available from the school).

INFORMATION TECHNOLOGY AND OTHER TOOLS

Students employ a range of tools in their work as mathematicians, including scientific and graphics calculators and computer software packages. Year 7 Home Rooms each have multiple computer stations connected to the College intranet and classes also have access to several computer laboratories. Class sets of graphics calculators are provided.

- 1. Computer software packages** – Geometer's Sketchpad – making accurate representations of 2-D and 3-D objects (Space); Excel – spreadsheets for managing numerical data (Number) (also databases), investigation of Pi (Measurement) and exploring rules for number sequences and relationships (Algebra); and Computer algebra systems – exploring tables and graphs (Algebra)
- 2. Computer files** - Various skills development, problem-solving and modelling activities
- 3. Graphics calculators** – graphical information and summary statistics (Chance and data)
- 4. Scientific calculators** – calculations involving fractions, decimals and percentages (Number)
- 5. Web research** – history of Maths, applications of Maths and the work of mathematicians

NUMERACY – MATHS ASSISTANCE AND ENRICHMENT

Maths teachers with allocated time and parent volunteers are available to assist individual students with their Maths skills development, consolidation and reinforcement both during the school day and after school.

Students have the opportunity to participate in a range of co-curricular enrichment Math activities:

- 1. Maths Games Days**
- 2. Australian Mathematics Challenge**
- 3. Australian Mathematics Competition for the Westpac Awards**
- 4. Mathematics Talent Quest (MTQ)** – this is the project assessment task during Semester One

HOME STUDY

Regular Mathematics home study of 1 hour per week is expected of all students, including

- Finishing textbook exercises
- Completion of project and problem-solving work
- Revising – redoing exercises and additional examples a week later